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(72) Inventor: **MARTINS, Laudir, Antonio [BR/BR]; Rua Homiro Fabrin, 24, CEP-93035-220 São Leopoldo, RS (BR).** *For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*



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(54) Title: **MANUFACTURING PROCESS FOR PRODUCTS FOR ANIMAL CONSUMPTION**

(57) Abstract: It was shown as main feature the soft and the flexible texture, made from leather hide or from the grounded scraps, it can get many shapes and measures in order to adapt to the kind of the animal that will chew it.

MANUFACTURING PROCESS FOR PRODUCTS FOR ANIMAL CONSUMPTION

INTRODUCTION

The following Invention Patent descriptive relatory mentions the bones, rolls, munchies, powder and other products for animal consumption manufacture process, which has as principal characteristic the soft and elastic consistency, it is made from hide and it can get a lot of shapes and measures, the munchies are got from the powder, that is the hide grounded, and it can get loads of shapes, such as geometrics ones, fruits, bones, thus to adapt to the right kind of animal

The bones, rolls, munchies, powder and other products for animal consumption manufacture process has some steps to be followed, starting from the chemical process, to obtain a white hide, before it goes to the driers, it has to be manufactured to get the required shapes, when the product is dried it is soft at the same time that it is resistant, higienic and last longer, the strips that were dried goes to the grounded machine.

TECHNICAL STATUS

The bones, rolls and other products for animal consumption decribed within this patent are products made of rawhide and got from a serie of steps. Those products has the following characteristics:

- They are products that can copy or not the classical bone shape, after they are dried they get some resitancy, such as mecanical, burn and cut resistant (tought).
- The bones and other products made from rawhide are hard, but they can get oft with the animal saliva prolonged contact.

- As they are made from rawhide, they are digestable and they can waste away as the time.

Those Rawhide bones with soft finishing and other rawhide products are important for animals, mainly for dogs, because:

- They provide exercise to the animal, helping the maxilar muscles, giving up the stress caused for over weight and the exercise less. Dogs and other domestics animals are out of their habitat, what can cause a bit of restlessness, even the dogs that are "homeless" can get restlessness.
- To chew is really important to keep the teeth clean, because it removes tartar build up and keep the breath healthy.
- It's excellent for animals to spend their time.

The products usually sold are hard and inflexible; no other kind of rawhide products for animal consumption is known that is soft and digestable at the same time. The products made of latex or other polímero are not digestable and they purpose just amusement.

SUGGESTED DEVELOPMENT

The discussion around the flexible and digestable bone, roll and other product for animal consumption solve with this manufacture process, shown and got from technical resources and determinate in this relatory, the manufacture process has the follow characteristics:

- It makes the rawhide to get a shape. It can imitate the classical bone shape, a tube that is called roll and many other shapes, all of that are resistant, but flexible, so it's got soft texture;
- It's made from leather hide and it's higenic and digestable.

The manufacture process depends on the tanneries basic treatments procedures, it has to behave special treatments steps to make the rawhide products production possible, sucessfull and with the texture already descripted.

PROCESS DESCRIPTION

The propossed patent characteristics is made trough the manufacture process description step by step, it should be made for easily undertanding, allowing invention full understanding.

From the process description, that shows the best way to make the idealized product, it is based on decsriptive relatory part, in maner to determinate the revindicate protection.

ALLEGATIONS

The propossed manufacture process is established from a serie of steps, mentioned next, and from the hides treated in drums.

To produce the bones, rolls and others the following steps are needed:

1. The rawhide is desgreaed and descalsinate adding 2% of amonia sulfate and 0,5% of biodegradable detergent (neuter);
2. Then add 100% of water in accordance the rawhide weight;
3. Then the got leather from the previous process is put inside the drum for 30 minutes around 3-4 RPM;
4. The ph control has to be within 9 to 10;
5. The leather washing continues for about 1 hour with running water;
6. The add 40% of water in accordance the rawhide wieght;
7. Later add 5% of Hydrogen peroxide at 50% concentrate (it has the option to place 0,2% of Sodium silicate);

8. Add 0,3% of Cloridric Acid at 40% for 1 hour;
9. It's possible to add conservant;
10. Add Bicarbonate 0,2% - 0,4% untill the ph gets 7-8, to neutralize (It's processed in the drum for 30 minutes);
11. Then add from 20% to 50% of glicol propilen or edible white glicerine (it's processed in the drum for 1 hour), then it's taken the drum off and let it for 4 - 5 hours at least;
12. Later the rawhide is cut in strip in accordance to its measures (from this step it's possible to make a large amount of different shapes products), then the classical shape bones with one knot in each point (knotted bone), or the rolls (tube shape) or the pretzel, or the donut, or the braided donut and sticks, or the other any shapes that is possible to make are produced.
13. When the rawhide strips get a shape , it is taken to the ovens at 40°C to 60°C for about 4 to 5 days and from 10 to 13% of humidity, the same happen to the scrap from the cutting process.

To produce the powder and the munchy products the steps are the following:

1. It follows from 1 to 11 the previous steps;
2. After the mentioned process and the manufactured products and scraps, the scraps are grounded to obtain the soft powder.
3. In a compound machine (mixer) 100 parts of soft flour is added to 10-20% of gelatine, or animal glue, or starch, or mandioc flour and food colorance, and several flavors, such as mint, vanilla, strawberry, peanut, chicken, beef, chesse, etc.

4. All those components are mixed for 30 minutes, later the mix is taken to a extruded machine.
5. On this step, when the mix is in the extruded machine, the shapes are choosen, it can be molded with stainless still, wood, plastic or other compatible material.
6. Than when the shapes are ready, it is taken to the ovens for 24 hours, at 40°C initial and 60°C final temperature.

CLAIM:

1 -The proposed bones, rolls, powder and munchies manufacture process is established from a serie of steps, mentioned next, and from the hides treated in drums.

To produce the bones, rolls and others the following steps are needed:

1. The rawhide is desgreased and descalsinate adding 2% of amonia sulfate and 0,5% of biodegradable detergent (neuter);
2. Then add 100% of water in accordance the rawhide weight;
3. Then the got leather from the previous process is put inside the drum for 30 minutes around 3-4 RPM;
4. The ph control has to be within 9 to 10;
5. The leather washing continues for about 1 hour with running water;
6. The add 40% of water in accordance the rawhide wieght;
7. Later add 5% of Hydrogen peroxide at 50% concentrate (it has the option to place 0,2% of Sodium silicate);
8. Add 0,3% of Cloridric Acid at 40% for 1 hour;
9. It's possible to add conservant;
10. Add Bicarbonate 0,2% - 0,4% untill the ph gets 7-8, to neutralize (It's processed in the drum for 30 minutes);
11. Then add from 20% to 50% of glicol propilen or edible white glicerine (it's processed in the drum for 1 hour), then it's taken the drum off and let it for 4 - 5 hours at least;
12. Later the rawhide is cut in strip in accordance to its measures (from this step it's possible to make a large amount of different shapes products), then the classical shape bones with one knot in each point (knotted bone),

or the rolls (tube shape) or the pretzel, or the donut, or the braided donut and sticks, or the other any shapes that is possible to make are produced.

13. When the rawhide strips get a shape, it is taken to the ovens at 40°C to 60°C for about 4 to 5 days and from 10 to 13% of humidity, the same happen to the scrap from the cutting process.

2 -The proposed bones, rolls, powder and munchies manufacture process is established from a series of steps, mentioned next, and from the hides treated in drums, the powder and the munchies follow the steps 1 to 11 already mentioned and some others to be characterized next:

1. After the mentioned process and the manufactured products and scraps, the scraps are grounded to obtain the soft powder.
2. In a compound machine (mixer) 100 parts of soft flour is added to 10-20% of gelatine, or animal glue, or starch, or mandioc flour and food colorance, and several flavors, such as mint, vanilla, strawberry, peanut, chicken, beef, chesse, etc.
3. All those components are mixed for 30 minutes, later the mix is taken to a extruded machine.
4. On this step, when the mix is in the extruded machine, the shapes are choosen, it can be molded with stainless still, wood, plastic or other compatible material.
5. Than when the shapes are ready, it is taken to the ovens for 24 hours, at 40°C initial and 60°C final temperature.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/BR 00/00121

CLASSIFICATION OF SUBJECT MATTER

IPC⁷: A 23 K 1/18

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC⁷: A 23 K 1/00, 1/18

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, PAJ, EPODOC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	GB 2332851 A (THE HARTZ MOUNTAIN CORP.) 7 July 1999 (07.07.99) page 4, line 13 - page 8, line 24, claims.	1
Y	GB 1201683 A (SUPERIOR PET PRODUCTS) 12 August 1970 (12.08.70) whole document.	1
Y	US 5635237 A (GREENBERG S. et.al.) 3 June 1997 (03.06.97) claims, examples, column 8, lines 8 - 18.	2
Y	DE 3918631 A1 (MERKERT J.) 13 December 1990 (13.12.90) whole document.	2

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

„A“ document defining the general state of the art which is not considered to be of particular relevance

„E“ earlier application or patent but published on or after the international filing date

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„O“ document referring to an oral disclosure, use, exhibition or other means

„P“ document published prior to the international filing date but later than the priority date claimed

„T“ later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

„X“ document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

„Y“ document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

„&“ document member of the same patent family

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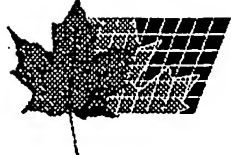
INTERNATIONAL SEARCH REPORT

Information on patent family members

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(30) 1998/11/06 (09/187,955) US

(54) **PROCESSUS DE REDUCTION DE LA TENEUR EN GRAS DE LA
PEAU DE PORC ET DES PRODUITS QUI EN SONT
FABRIQUES**

(54) **PROCESS FOR REDUCING FAT CONTENT OF PORK SKIN
AND PRODUCTS MADE THEREFROM**

(57) A process is disclosed for the calculated removal of fat from pork skin. Pork skin is subjected to tumbling cycles during which the pork skin is tumbled first in warm water and subsequently in warm water containing salt and concentrated laundry detergent. As this two step cycle is repeated, fat contained within the pork skin separates and is drained from the pork skin with the rinse water. The cycle may be repeated until the pork skin contains a desired percentage of fat. The process does not require that the pork skin be ground or otherwise comminuted in order to selectively remove fat from the material, nor does the process use harsh solvents or chemicals that might render the pork skin inedible or toxic. Because the process is all natural, the reduced fat whole pork skin is edible and may be formed into a variety of canine treats through additional processing and cooking. These canine treat products may include knotted bones, twisted products, chips, filled bones, sticks, patties and various ground products.



**PROCESS FOR REDUCING FAT CONTENT
OF PORK SKIN AND PRODUCTS MADE THEREFROM
Inventor: Donald A. Lynch**

BACKGROUND OF THE INVENTION

1. Field of the Invention

The field of the present invention concerns the use of animal skins as food treats for canines. These treats may be prepared from a variety of materials such as cow raw hide or pork skins. The process and products of the present invention concern the use of pork skin and the removal of a desired amount of fat from that starting material. The present invention does not concern the use of pork skin for non-dietary purposes, nor does it concern a process for use on pork meat.

2. Description of the Prior Art

Traditionally, canine treats have been made from cow raw hide or pork skin. Raw hide has significant disadvantages in that it is indigestible providing no nutritional value to the animal and is well known for becoming lodged in the animal's throat or digestive tract. Pork skin is a more preferable

material for canine treats since it is digestible providing nutritional value to the animal.

Historically, pork skin has been used as a base material for a variety of non-food products such as shoes, gloves, belts and other items. In the manufacture of these types of goods, any fat present in the raw material must be removed and conventional techniques are known that will entirely remove fat from pork skin. However, these known techniques typically involve saturating the pork skin with strong hydrocarbon solvents that will solubilize any fat that is present in the material. Not only do such techniques remove all of the fat that is held within the pork skin, but the use of these solvents renders the pork skin inedible and in some cases toxic. Therefore, there remains a need for a process that will allow for the controlled removal of fat from pork skin and that will not render the pork skin inedible upon completion of the process.

There are also known techniques and processes for the removal of fat from various types of raw meat materials such as beef, fowl, pork and seafood products. U.S. Patent No. 5,221,554, issued to Gamay, entitled "Process for producing low-fat meat products" is an example. The '554 patent discloses a process in which the meat is comminuted into small particles, typically through grinding, in the presence of water with ionic strength manipulation. The meat in solution is then fractionalized into fatty materials, connective

increasing the tumbling time and shorter tumbling times may be used by increasing the concentration of the solutions.

5 Regardless of the fat content of the raw pork skin, the temperature of the solutions used in the fat reduction process should be maintained within a narrow range. Typically, this range will be about 140 degrees to about 145 degrees Fahrenheit. All temperatures mentioned in this disclosure are stated in degrees of Fahrenheit. This range must be maintained for if the temperature is too low the tumbling
10 process will be ineffective at removing fat. Alternatively, it has been found that if the temperature is maintained above this range, the protein in the pork skin will denature and the material will disintegrate during the tumbling cycle.

15 Initially, the raw pork skin is cleaned and placed in a commercial tumbler machine. The tumbler provides messaging and agitation action on the pork skin and its size and features may significantly affect the duration of tumbling that is required. The tumbler used in this description is a commercial tumbler having a five hundred pound capacity, a
20 diameter of approximately three feet and was typically operated at eighteen to twenty four rpms. The action of the tumbler on the pork skin is dependent on the size and speed of the tumbler. Typically, tumbling times may be shortened by running the tumbler at faster rpms and/or by using a smaller
25 tumbler. However, the effect of faster rpms may be negated if the pork skins are tumbled in a tumbler with a larger

PCL XL error

Subsystem: IMAGE

Error: MissingData

Operator: ReadImage

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final agitation step in which it is submersed in a solution of heated water, sugar and a flavoring agent such as liquid smoke. The process is all natural and does not involve the use of harsh solvents or chemicals.

5 The whole reduced fat pork skins containing a selected percentage of fat may be formed into a variety of desired shapes and cooked using a variety of processes and equipment. In addition, the reduced fat pork skins may be ground and mixed with other ingredients for use in manufacturing a
10 variety of edible products.

 These and other objects, advantages, and features of this invention will be apparent to those skilled in the art from a consideration of this specification including the appended claims.

15 DESCRIPTION OF THE PREFERRED EMBODIMENTS

 In the process of the present invention, fat is removed from whole pork skin so that it contains a nutritionally desirable amount of fat. The reduced fat whole pork skins may then be further processed into a number of different canine
20 treat products.

 As noted herein, canine treat products have traditionally been made from cow raw hide. However, raw hide is rigid and indigestible providing no nutritional value to the animal and in some cases creating a hazard should the material become
25 lodged in the animal's throat or digestive tract. Whole pork skin is a more desirable material since it is softer and

It is an additional object of the present invention to provide a process for preparing a variety of treat products that will appeal to canines using the reduced fat pork skin material. These additional products may include simulated
5 bones, chips, twisted products, filled bones, patties, sticks and similar treat products.

It is an additional object of present invention to provide a fat removal process that does not require the use of harsh solvents or chemicals that might otherwise render the
10 pork skin inedible or unfit for consumption.

It is a further object of the present invention that the process may be carried out using conventional materials and equipment, requiring a minimal skill and supervision.

SUMMARY OF THE INVENTION

15 The process of a preferred embodiment of the present invention is one intended to remove a controlled amount of fat from an animal skin material so that the material may be appropriately processed for subsequent consumption. The fat removal process includes a first agitation cycle in which
20 whole pork skins are placed in warm water and tumbled and a second agitation cycle in which the pork skins are tumbled in the presence of warm water, salt and laundry detergent. The fat in the pork skin is gradually removed through this two cycle process and the cycle should be repeated until the
25 desired level of fat is reached. When the pork skins have a desired amount of fat, the material is then agitated in a

techniques are not intended for use on pork skin or other animal skin materials but are directed at meat and meat trimmings. They require that the meat used be reduced to smaller particle sizes either through grinding or hand trimming before the disclosed process can be used to remove fat retained in the meat. Further, the operating temperatures discussed in these processes are relatively low so that the taste or texture of the meat is not adversely affected by the fat removal process. These lower operating temperatures are generally too low to effect the removal of fat from animal skin materials such as pork skin. Furthermore, these processes are not designed for and thus, are incapable of removing an incremental amount of fat from animal skin materials such the fat content of the final product may be selected during processing.

Therefore, it is an object of the present invention to provide an all natural process for removing a controlled amount of fat from pork skin rendering it a nutritional material.

It is another object of the present invention to provide a fat removal process that does not require the comminuting or grinding of the animal skin material prior to removing fat therefrom such that the reduced fat material may be subsequently used to produce a greater variety of food and treat products.

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tissues and low fat meat particles. The disclosed process, however, does not address pork skin, the removal of a controlled amount of fat therefrom, or the manufacture of products from that material. Further, the process requires that the meat be broken down into smaller particles in order to remove fat from the meat.

Several other known techniques for removing fat from meat materials include grinding the meat and extruding it through a specially designed heat exchanger as described in U.S. Patent No. 4,567,050, entitled, "Method for processing meat products"; exposing the meat material to ultraviolet light and comminuting the meat at low temperatures in the presence of edible acids, salts and food phosphates as described in U.S. Patent No. 4,788,682, entitled "Method of preparing a low-fat, low-cholesterol raw meat product"; introducing a heated unsaturated oil into the material to solubilize the fat for subsequent extraction, as is described in U.S. Patent No. 4,980,185, entitled "Method for making meat products having a reduced saturated fat and cholesterol content"; and various techniques that comminute the meat, and use heat treatments to separate the fat as illustrated by U.S. Patent No. 5,762,993, entitled "Process for preparing reduced fat meat". All of these processes are directed at removing a high percentage of the fat from the meat so that it may be used to prepare food products for human consumption that may be characterized as either low in fat or "fat free." These disclosed processes and

comminuted skin with about 360 ml of a pre-gelled starch and about 30 ml of a gelatin, adding water and a flavoring agent to the mixture; and comminuting the mixture.

38. A filled bone product made in accordance with the process of claim 32, the bone product having a fat content of about ten percent by weight.

39. The process of claim 1, further comprising the steps of comminuting the reduced fat skin, extruding the comminuted skin into sticks and cooking.

PROCESS FOR REDUCING FAT CONTENT
OF PORK SKIN AND PRODUCTS MADE THEREFROM

ABSTRACT

A process is disclosed for the calculated removal of fat from pork skin. Pork skin is subjected to tumbling cycles during which the pork skin is tumbled first in warm water and subsequently in warm water containing salt and concentrated laundry detergent. As this two step cycle is repeated, fat contained within the pork skin separates and is drained from the pork skin with the rinse water. The cycle may be repeated until the pork skin contains a desired percentage of fat. The process does not require that the pork skin be ground or otherwise comminuted in order to selectively remove fat from the material, nor does the process use harsh solvents or chemicals that might render the pork skin inedible or toxic. Because the process is all natural, the reduced fat whole pork skin is edible and may be formed into a variety of canine treats through additional processing and cooking. These canine treat products may include knotted bones, twisted products, chips, filled bones, sticks, patties and various ground products.